

KEY:

**Red text:** Changes to be made to DB ontology that were unable to be made during last ontology update (for Editorial Office Use Only)

**TS27 urinary and reproductive systems (P0 – P3)**

- EMAP:30155 mouse
- EMAP:30154    └ organ system
- EMAP:30153    └ visceral organ
- EMAP:30243    └ urinary system
- EMAP:30400    └ mesentery
- EMAP:30401    └ rest of mesentery
- EMAP:30402    └ urogenital mesentery
- EMAP:30247    └ metanephros (syn: kidney)
- EMAP:30249    └ renal capsule
- EMAP:30282    └ nephrogenic zone
- EMAP:30283    └ nephrogenic interstitium (syn: peripheral blastema)
- EMAP:30284    └ cap mesenchyme (syn: condensed mesenchyme)
- EMAP:30285    └ pretubular aggregate (syn: pretubular condensate)
- EMAP:30248    └ ureteric tip (syn: ureteric ampulla)
- EMAP:31052    └ ureteric tree terminal branch excluding tip itself
- EMAP:30287    └ renal cortex
- EMAP:30316    └ renal vesicle (syn: epithelial vesicle; stage I nephron)
- EMAP:31699    └ renal connecting segment of renal vesicle
- EMAP:31730    └ distal renal vesicle
- EMAP:31724    └ proximal renal vesicle
- EMAP:30303    └ comma-shaped body
- EMAP:30304    └ upper limb of comma-shaped body (syn: distal limb of comma-shaped body)
- EMAP:30305    └ lower limb of comma-shaped body (syn: proximal limb of comma-shaped body)
- EMAP:31716    └ renal connecting segment of comma-shaped body
- EMAP:30319    └ s-shaped body (syn: stage II nephron)
- EMAP:30324    └ renal connecting tubule of s-shaped body
- EMAP:30320    └ distal segment of s-shaped body (syn: upper limb of s-shaped body)
- EMAP:30325    └ medial segment of s-shaped body (syn: mid-portion of s-shaped body)
- EMAP:30321    └ proximal segment of s-shaped body (syn: lower limb of s-shaped body)
- EMAP:30322    └ visceral epithelium
- EMAP:30323    └ parietal epithelium
- EMAP:30307    └ capillary loop renal corpuscle (syn: renal corpuscle of the stage III nephron)
- EMAP:30311    └ associated interstitium of renal corpuscle
- EMAP:30312    └ parietal epithelium
- EMAP:30310    └ presumptive endothelium of renal corpuscle
- EMAP:30309    └ presumptive mesangium
- EMAP:30308    └ visceral epithelium (syn: podocyte layer)
- EMAP:30264    └ maturing renal corpuscle (syn: renal corpuscle of Stage IV nephron)
- EMAP:30268    └ maturing glomerular tuft (syn: maturing glomerulus)
- EMAP:30271    └ glomerular capillary system of maturing glomerular tuft
- EMAP:30270    └ glomerular mesangium
- EMAP:30269    └ visceral epithelium (syn: podocyte layer)
- EMAP:30971    └ glomerular basement membrane
- EMAP:30272    └ Bowman's capsule (syn: glomerular capsule)
- EMAP:30274    └ parietal epithelium
- EMAP:30273    └ urinary space of renal corpuscle (syn: Bowman's space)
- EMAP:30275    └ glomerular mesangium of Bowman's capsule
- EMAP:30265    └ juxtaglomerular arteriole
- EMAP:30266    └ afferent arteriole
- EMAP:30267    └ efferent arteriole
- EMAP:30289    └ mature renal corpuscle (syn: Malpighian corpuscle)
- EMAP:30291    └ glomerular tuft (syn: glomerulus)
- EMAP:30294    └ glomerular capillary system
- EMAP:30295    └ glomerular mesangium
- EMAP:30293    └ glomerular basement membrane
- EMAP:30292    └ visceral epithelium (syn: podocyte layer)
- EMAP:30300    └ Bowman's capsule (syn: glomerular capsule)
- EMAP:30301    └ parietal epithelium
- EMAP:30302    └ urinary space of renal corpuscle (syn: Bowman's space)
- EMAP:30296    └ afferent arteriole
- EMAP:30297    └ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)
- EMAP:30298    └ rest of afferent arteriole
- EMAP:30290    └ efferent arteriole
- EMAP:30299    └ extraglomerular mesangium
- EMAP:30253    └ cortical renal tubule

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EMAP:30254					renal proximal tubule
EMAP:30255					└ early proximal tubule
EMAP:31707					└└ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule)
EMAP:31615					└└└ early proximal tubule of maturing nephron
EMAP:30256					└└ renal proximal convoluted tubule (syn: first convoluted tubule)
EMAP:31287					└ anlage of loop of Henle (syn: primitive loop of Henle)
EMAP:30257					renal distal tubule
EMAP:30261					└ early distal tubule
EMAP:31642					└└ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)
EMAP:31621					└└└ early distal tubule of maturing nephron
EMAP:30262					└ distal convoluted tubule (syn: second convoluted tubule)
EMAP:30258					└└ distal straight tubule (syn: thick ascending limb)
EMAP:31382					└└└ premacula segment of distal straight tubule
EMAP:30260					└└└ macula densa
EMAP:30259					└└└ postmacula segment
EMAP:30263					└ renal connecting tubule
EMAP:31627					└└ renal connecting tubule of capillary loop nephron
EMAP:31633					└└ renal connecting tubule of maturing nephron
EMAP:31636					└└└ renal connecting tubule of mature nephron
EMAP:30281					└ cortical collecting duct
EMAP:30315					└ renal cortical interstitium (syn: cortical stroma)
EMAP:31294					└ renal cortical fibroblasts
EMAP:31302					└ resident macrophages of the cortex (syn: renal monocytes of the cortex)
EMAP:31310					└└ rest of renal cortical interstitium
EMAP:30326					└ renal cortical vasculature
EMAP:30328					└ renal cortical arterial system
EMAP:30330					└└ interlobular artery
EMAP:30329					└└└ arcuate artery
EMAP:30331					└ renal cortical venous system
EMAP:30333					└└ interlobular vein
EMAP:30332					└└└ arcuate vein
EMAP:30327					└└ renal cortical capillary
EMAP:31317					└ renal cortical lymphatics
EMAP:31324					└└ renal cortical nerves
EMAP:30334					└ renal medulla
EMAP:31459					└ <del>renal medullary interstitium (syn: medullary stroma)</del>
EMAP:31331					└ <del>renal medullary fibroblasts</del>
EMAP:31338					└ <del>resident macrophages of the medulla (syn: renal monocytes of the medulla)</del>
EMAP:31345					└└ <del>rest of renal medullary interstitium</del>
EMAP:30343					└ outer medulla
EMAP:30351					└└ loop of Henle, outer medullary portion
EMAP:30353					└└└ thin descending limb
EMAP:30352					└└└ thin ascending limb (syn: ascending thin limb)
EMAP:30356					└└ proximal straight tubule (syn: pars recta; segment 3 of proximal tubule)
EMAP:30354					└└└ premacula segment of distal straight tubule (syn: thick ascending limb)
EMAP:30350					└ outer medullary interstitium
EMAP:31387					└└ outer medullary fibroblast
EMAP:31392					└└ resident macrophage of the outer medulla (syn: renal monocytes of the outer medulla)
EMAP:31397					└└└ rest of outer medullary interstitium
EMAP:30349					└└ outer medullary collecting duct
EMAP:30335					└ inner medulla (syn: papilla)
EMAP:30339					└└ loop of Henle, inner medullary portion
EMAP:30341					└└└ thin descending limb
EMAP:30340					└└└ bend (syn: U-turn)
EMAP:30342					└└└ thin ascending limb (syn: ascending thin limb)
EMAP:30337					└ inner medullary interstitium (syn: papillary interstitium)
EMAP:31402					└└ inner medullary fibroblast
EMAP:31407					└└└ resident macrophage of the inner medulla (syn: renal monocytes of the inner medulla)
EMAP:30336					└└ inner medullary collecting duct (syn: papillary collecting duct)
EMAP:30357					└ renal medullary vasculature
EMAP:30358					└└ renal medullary arterial system
EMAP:30360					└└ renal medullary venous system
EMAP:30359					└└└ renal medullary capillary (syn: vasa recta)
EMAP:31352					└ renal medullary lymphatics
EMAP:31359					└└ renal medullary nerves
EMAP:30250					└ calyx
EMAP:30251					└└ major
EMAP:30252					└└└ minor
EMAP:30276					└ pelvis
EMAP:30278					└└ pelvic urothelial lining (syn: pelvic urothelium)
EMAP:30277					└└ pelvic smooth muscle
EMAP:30279					└└ perihilar interstitium

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EMAP: 31365				└ perihilar fibroblast
EMAP: 31371				└ resident macrophage of the perihilar interstitium (syn: renal monocytes of the perihilar interstitium)
EMAP: 31377				└ rest of perihilar interstitium
EMAP: 30244				└ renal artery
EMAP: 30245				└ endothelial layer of renal artery
EMAP: 30465				└ endothelium of renal artery
EMAP: 30246				└ smooth muscle layer of renal artery
EMAP: 30404				└ renal vein
EMAP: 30405				└ endothelial layer of renal vein
EMAP: 30466				└ endothelium of renal vein
EMAP: 30406				└ smooth muscle layer of renal vein
EMAP: 30363				└ ureter
EMAP: 30369				└ urothelium (syn: transitional epithelium)
EMAP: 30373				└ superficial cellular layer (syn: umbrella cell)
EMAP: 30370				└ deep cellular layer (syn: basal urothelium)
EMAP: 30371				└ intermediate cell layer
EMAP: 30372				└ basal cell layer
EMAP: 30367				└ lamina propria
EMAP: 30364				└ ureteral smooth muscle layer
EMAP: 30365				└ smooth muscle component
EMAP: 30366				└ interstitium (syn: Cajal cell)
EMAP: 30368				└ adventitia of ureter
EMAP: 30858				└ ureteral vasculature
EMAP: 30374				└ bladder
EMAP: 30380				└ epithelium of bladder (syn: urothelium)
EMAP: 30382				└ epithelium of fundus
EMAP: 30381				└ epithelium of trigone
EMAP: 30383				└ epithelium of neck
EMAP: 30396				└ lamina propria of the bladder
EMAP: 30397				└ lamina propria of fundus
EMAP: 30398				└ lamina propria of trigone
EMAP: 30399				└ lamina propria of neck
EMAP: 30388				└ muscularis mucosa of bladder
EMAP: 30390				└ muscularis mucosa of fundus
EMAP: 30389				└ muscularis mucosa of trigone
EMAP: 30391				└ muscularis mucosa of neck
EMAP: 30376				└ detrusor muscle of bladder
EMAP: 30378				└ detrusor muscle of fundus
EMAP: 30377				└ detrusor muscle of trigone
EMAP: 30379				└ detrusor muscle of neck
EMAP: 30392				└ serosa of bladder
EMAP: 30395				└ serosa of fundus
EMAP: 30393				└ serosa of trigone
EMAP: 30394				└ serosa of neck
EMAP: 30384				└ adventitia of bladder
EMAP: 30385				└ adventitia of fundus
EMAP: 30387				└ adventitia of trigone
EMAP: 30386				└ adventitia of neck
EMAP: 30375				└ blood vessels of bladder
EMAP: 31659				└ nerve of bladder
EMAP: 30403				└ urachus
EMAP: 30418				└ urethra of female
EMAP: 30419				└ pelvic urethra of female
EMAP: 30421				└ epithelial layer of pelvic urethra of female
EMAP: 30422				└ mesenchymal layer of pelvic urethra of female
EMAP: 30420				└ muscle layer of pelvic urethra of female
EMAP: 31799				└ nerve of pelvic urethra of female
EMAP: 30922				└ phallic urethra of female (syn: external urethra of female)
EMAP: 30933				└ epithelial layer of phallic urethra of female
EMAP: 30937				└ mesenchymal layer of phallic urethra of female
EMAP: 30941				└ muscle layer of phallic urethra of female
EMAP: 31740				└ nerve of phallic urethra of female
EMAP: 30407				└ urethra of male
EMAP: 30412				└ pelvic urethra of male
EMAP: 30415				└ epithelial layer of pelvic urethra of male
EMAP: 30414				└ mesenchymal layer of pelvic urethra of male
EMAP: 30413				└ muscle layer of pelvic urethra of male
EMAP: 31789				└ nerve of pelvic urethra of male
EMAP: 30408				└ phallic urethra of male (syn: external urethra of male)
EMAP: 30409				└ epithelial layer of phallic urethra of male
EMAP: 30411				└ mesenchymal layer of phallic urethra of male
EMAP: 30410				└ muscle layer of phallic urethra of male

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EMAP: 31805			└─┬ nerve of phallic urethra of male
EMAP: 30416			└─┬ urorectal septum
EMAP: 31648			└─┬ pelvic ganglion
EMAP: 30156			└─┬ reproductive system
EMAP: 30157			└─┬ male reproductive system
EMAP: 30171			└─┬ testis
EMAP: 30185			└─┬ rete testis
EMAP: 30176			└─┬ interstitium of the testis (syn: interstitial tissue)
EMAP: 30178			└─┬ fetal Leydig cell
EMAP: 30177			└─┬ rest of interstitium of the testis (syn: non-specific mesenchyme)
EMAP: 30179			└─┬ tunica vaginalis testis
EMAP: 30181			└─┬ seminiferous cord (syn: seminiferous tubule)
EMAP: 30184			└─┬ Sertoli cell
EMAP: 30183			└─┬ germ cell of testis
EMAP: 30182			└─┬ peritubular myoid cell
EMAP: 30175			└─┬ mediastinum testis
EMAP: 30172			└─┬ developing vasculature of the testis
EMAP: 30173			└─┬ coelomic vessel
EMAP: 30174			└─┬ interstitial vessel
EMAP: 30180			└─┬ tunica albuginea of testis
EMAP: 31243			└─┬ surface epithelium of testis
EMAP: 30186			└─┬ cystic vesicular appendage
EMAP: 30198			└─┬ inguinal canal
EMAP: 30165			└─┬ inguinal ring
EMAP: 30167			└─┬ external inguinal ring
EMAP: 30166			└─┬ internal inguinal ring
EMAP: 30188			└─┬ seminal vesicle (syn: vesicular seminalis)
EMAP: 30189			└─┬ glandular tissue of seminal vesicle
EMAP: 30190			└─┬ duct of the seminal vesicle
EMAP: 30196			└─┬ efferent duct of seminal vesicle (syn: vasa efferentia)
EMAP: 30199			└─┬ epididymis
EMAP: 30200			└─┬ caput epididymis
EMAP: 30615			└─┬ epithelium of caput of epididymis
EMAP: 30619			└─┬ muscle layer of caput of epididymis
EMAP: 30623			└─┬ adventitia of caput of epididymis
EMAP: 31208			└─┬ developing vasculature of caput epididymis
EMAP: 30202			└─┬ cauda epididymis
EMAP: 30591			└─┬ epithelium of cauda of epididymis
EMAP: 30595			└─┬ muscle layer of cauda of epididymis
EMAP: 30599			└─┬ adventitia of cauda of epididymis
EMAP: 31198			└─┬ developing vasculature of cauda epididymis
EMAP: 30201			└─┬ corpus epididymis
EMAP: 30603			└─┬ epithelium of corpus epididymis
EMAP: 30607			└─┬ muscle layer of corpus of epididymis
EMAP: 30611			└─┬ adventitia of corpus of epididymis
EMAP: 31203			└─┬ developing vasculature of corpus epididymis
EMAP: 31187			└─┬ developing vasculature of epididymis
EMAP: 30168			└─┬ ductus deferens (syn: vas deferens)
EMAP: 30170			└─┬ epithelium of ductus deferens
EMAP: 30169			└─┬ muscle layer of ductus deferens
EMAP: 30753			└─┬ outer layer of ductus deferens
EMAP: 31193			└─┬ developing vasculature of ductus deferens
EMAP: 30158			└─┬ appendix epididymis
EMAP: 30195			└─┬ appendix testis
EMAP: 30160			└─┬ ejaculatory duct
EMAP: 30192			└─┬ male accessory gland
EMAP: 30193			└─┬ bulbourethral gland (syn: Cowper's gland)
EMAP: 30194			└─┬ prostate gland
EMAP: 30187			└─┬ gubernaculum (syn: caudal suspensory ligament)
EMAP: 30159			└─┬ mesorchium
EMAP: 30161			└─┬ penis (syn: genital tubercle of male)
EMAP: 30162			└─┬ glans penis
EMAP: 30649			└─┬ surface epithelium of glans penis
EMAP: 30645			└─┬ mesenchyme of glans penis
EMAP: 30164			└─┬ crus penis
EMAP: 30671			└─┬ surface epithelium of crus penis
EMAP: 30667			└─┬ mesenchyme of crus penis
EMAP: 30163			└─┬ prepuce of male
EMAP: 30658			└─┬ prepuce surface epithelium of male
EMAP: 30662			└─┬ preputial gland of male
EMAP: 30653			└─┬ prepuce mesenchyme of male
EMAP: 30736			└─┬ scrotal fold

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EMAP: 30742			scrotal fold mesenchyme of male
EMAP: 30739			scrotal fold surface epithelium of male
EMAP: 30203		└	female reproductive system
EMAP: 30224			ovary
EMAP: 30232			surface epithelium of ovary (syn: coelomic epithelium)
EMAP: 30525			tunica albuginea of ovary (syn: ovarian capsule)
EMAP: 30227			mesenchymal stroma of ovary
EMAP: 30228			cortical component of mesenchymal stroma
EMAP: 31044			rest of cortical component of mesenchymal stroma of ovary
EMAP: 31039			pre-granulosa cell
EMAP: 30229			medullary component of mesenchymal stroma
EMAP: 31033			meiotic oocytes
EMAP: 31245			primordial follicle
EMAP: 31246			oocyte of primordial follicle
EMAP: 31248			follicle cell of primordial follicle (syn: granulosa cell)
EMAP: 30231			developing vasculature of ovary
EMAP: 30225			rete ovarii of ovary
EMAP: 30208			mesovarium
EMAP: 30219			cystic vesicular appendage
EMAP: 30218			suspensory ligament of ovary
EMAP: 30209			Müllerian tubercle
EMAP: 30214			oviduct
EMAP: 30215			epithelial layer of oviduct
EMAP: 30216			muscle layer of oviduct
EMAP: 30217			outer layer of oviduct
EMAP: 31218			developing vasculature of oviduct
EMAP: 30205			uterine horn (syn: uterus)
EMAP: 30207			epithelium (syn: endometrium)
EMAP: 30206			muscular layer (syn: myometrium)
EMAP: 31213			developing vasculature of uterine horn
EMAP: 30679			outer layer of uterine horn
EMAP: 30236			vagina
EMAP: 30237			lower part of vagina
EMAP: 30238			epithelial layer of lower part of vagina
EMAP: 30239			muscular layer of lower part of vagina
EMAP: 31228			developing vasculature of lower part of vagina
EMAP: 30240			upper part of vagina
EMAP: 30241			epithelial layer of upper part of vagina
EMAP: 30242			muscular layer of upper part of vagina
EMAP: 31223			developing vasculature of upper part of vagina
EMAP: 30211			genital tubercle of female (syn: clitoris anlage)
EMAP: 30213			glans clitoris
EMAP: 30723			surface epithelium of glans clitoris
EMAP: 30718			mesenchyme of glans clitoris
EMAP: 30212			crus of clitoris
EMAP: 30733			surface epithelium of crus of clitoris
EMAP: 30728			mesenchyme of crus of clitoris
EMAP: 30702			prepuce of female
EMAP: 30710			prepuce surface epithelium of female
EMAP: 30714			preputial gland of female
EMAP: 30706			prepuce mesenchyme of female
EMAP: 30204			labial swelling (syn: labia)
EMAP: 30442			surface epithelium of labial swelling
EMAP: 30437			mesenchymal layer of labial swelling
EMAP: 30220			inguinal canal
EMAP: 30221			inguinal ring
EMAP: 30223			internal (syn: deep)
EMAP: 30222			external (syn: superficial)

**TS27 Groups**

'G' : Term is a group.

EMAP: 30155	mouse		
EMAP: 30154		L	organ system
EMAP: 30153			visceral organ
EMAP: 30243			urinary system
EMAP: 30247			metanephros (syn: kidney)
EMAP: 30287			renal cortex
EMAP: 30253			cortical renal tubule
EMAP: 31824	G		cortical renal tubule of capillary loop nephron GROUP
EMAP: 31287			anlage of loop of Henle (syn: primitive loop of Henle)
EMAP: 31642			early distal tubule of capillary loop nephron (syn: anlage of distal tubule)
EMAP: 31707			early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule)
EMAP: 31627			renal connecting tubule of capillary loop nephron
EMAP: 31818	G		cortical renal tubule of maturing nephron GROUP
EMAP: 31621			early distal tubule of maturing nephron
EMAP: 31615			early proximal tubule of maturing nephron
EMAP: 31633			renal connecting tubule of maturing nephron
EMAP: 31793	G		cortical renal tubule of mature nephron GROUP
EMAP: 30262			distal convoluted tubule (syn: second convoluted tubule)
EMAP: 30258			distal straight tubule (syn: thick ascending limb)
EMAP: 31382			premacula segment of distal straight tubule
EMAP: 30260			macula densa
EMAP: 30259			postmacula segment
EMAP: 31636			renal connecting tubule of mature nephron
EMAP: 30256			renal proximal convoluted tubule (syn: first convoluted tubule)
EMAP: 30318	G		early tubule
EMAP: 30316			renal vesicle (syn: epithelial vesicle; stage I nephron)
EMAP: 31699			renal connecting segment of renal vesicle
EMAP: 31730			distal renal vesicle
EMAP: 31724			proximal renal vesicle
EMAP: 30303			comma-shaped body
EMAP: 30304			upper limb of comma-shaped body (syn: distal limb of comma-shaped body)
EMAP: 30305			lower limb of comma-shaped body (syn: proximal limb of comma-shaped body)
EMAP: 31716			renal connecting segment of comma-shaped body
EMAP: 30319			s-shaped body (syn: stage II nephron)
EMAP: 30324			renal connecting tubule of s-shaped body
EMAP: 30320			distal segment of s-shaped body (syn: upper limb of s-shaped body)
EMAP: 30325			medial segment of s-shaped body (syn: mid-portion of s-shaped body)
EMAP: 30321			proximal segment of s-shaped body (syn: lower limb of s-shaped body)
EMAP: 30322			visceral epithelium
EMAP: 30323			parietal epithelium
EMAP: 30317	G		developing capillary loop stage nephron GROUP (syn: stage III nephron)
EMAP: 30307			capillary loop renal corpuscle (syn: renal corpuscle of the stage III nephron)
EMAP: 30311			associated interstitium of renal corpuscle
EMAP: 30312			parietal epithelium
EMAP: 30310			presumptive endothelium of renal corpuscle
EMAP: 30309			presumptive mesangium
EMAP: 30308			visceral epithelium (syn: podocyte layer)
EMAP: 30253			cortical renal tubule
EMAP: 30254			renal proximal tubule
EMAP: 30255			early proximal tubule
EMAP: 31707			early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule)
EMAP: 31615			early proximal tubule of maturing nephron
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EMAP: 31636			renal connecting tubule of mature nephron
EMAP: 31824			cortical renal tubule of capillary loop nephron GROUP







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EMAP:31615						└─┬ early proximal tubule of maturing nephron
EMAP:30256						└─┬ renal proximal convoluted tubule (syn: first convoluted tubule)
EMAP:31287						└─┬ anlage of loop of Henle (syn: primitive loop of Henle)
EMAP:30257						└─┬ renal distal tubule
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EMAP:31382						└─┬ premacula segment of distal straight tubule
EMAP:30260						└─┬ macula densa
EMAP:30259						└─┬ postmacula segment
EMAP:30263						└─┬ renal connecting tubule
EMAP:31627						└─┬ renal connecting tubule of capillary loop nephron
EMAP:31633						└─┬ renal connecting tubule of maturing nephron
EMAP:31636						└─┬ renal connecting tubule of mature nephron
EMAP:31824						└─┬ cortical renal tubule of capillary loop nephron GROUP
EMAP:31287						└─┬ anlage of loop of Henle (syn: primitive loop of Henle)
EMAP:31642						└─┬ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)
EMAP:31707						└─┬ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule)
EMAP:31627						└─┬ renal connecting tubule of capillary loop nephron
EMAP:31818						└─┬ cortical renal tubule of maturing nephron GROUP
EMAP:31621						└─┬ early distal tubule of maturing nephron
EMAP:31615						└─┬ early proximal tubule of maturing nephron
EMAP:31633						└─┬ renal connecting tubule of maturing nephron
EMAP:31793						└─┬ cortical renal tubule of mature nephron GROUP
EMAP:30262						└─┬ distal convoluted tubule (syn: second convoluted tubule)
EMAP:30258						└─┬ distal straight tubule (syn: thick ascending limb)
EMAP:31382						└─┬ premacula segment of distal straight tubule
EMAP:30260						└─┬ macula densa
EMAP:30259						└─┬ postmacula segment
EMAP:31636						└─┬ renal connecting tubule of mature nephron
EMAP:30256						└─┬ renal proximal convoluted tubule (syn: first convoluted tubule)
EMAP:30316						└─┬ renal vesicle (syn: epithelial vesicle; stage I nephron)
EMAP:31699						└─┬ renal connecting segment of renal vesicle
EMAP:31730						└─┬ distal renal vesicle
EMAP:31724						└─┬ proximal renal vesicle
EMAP:30303						└─┬ comma-shaped body
EMAP:30304						└─┬ upper limb of comma-shaped body (syn: distal limb of comma-shaped body)
EMAP:30305						└─┬ lower limb of comma-shaped body (syn: proximal limb of comma-shaped body)
EMAP:31716						└─┬ renal connecting segment of comma-shaped body
EMAP:30319						└─┬ s-shaped body (syn: stage II nephron)
EMAP:30324						└─┬ renal connecting tubule of s-shaped body
EMAP:30320						└─┬ distal segment of s-shaped body (syn: upper limb of s-shaped body)
EMAP:30325						└─┬ medial segment of s-shaped body (syn: mid-portion of s-shaped body)
EMAP:30321						└─┬ proximal segment of s-shaped body (syn: lower limb of s-shaped body)
EMAP:30322						└─┬ visceral epithelium
EMAP:30323						└─┬ parietal epithelium
EMAP:30307						└─┬ capillary loop renal corpuscle (syn: renal corpuscle of the stage III nephron)
EMAP:30311						└─┬ associated interstitium of renal corpuscle
EMAP:30312						└─┬ parietal epithelium
EMAP:30310						└─┬ presumptive endothelium of renal corpuscle
EMAP:30309						└─┬ presumptive mesangium
EMAP:30308						└─┬ visceral epithelium (syn: podocyte layer)
EMAP:30264						└─┬ maturing renal corpuscle (syn: renal corpuscle of Stage IV nephron)
EMAP:30268						└─┬ maturing glomerular tuft (syn: maturing glomerulus)
EMAP:30271						└─┬ glomerular capillary system of maturing glomerular tuft
EMAP:30270						└─┬ glomerular mesangium
EMAP:30269						└─┬ visceral epithelium (syn: podocyte layer)
EMAP:30971						└─┬ glomerular basement membrane
EMAP:30272						└─┬ Bowman's capsule (syn: glomerular capsule)
EMAP:30274						└─┬ parietal epithelium
EMAP:30273						└─┬ urinary space of renal corpuscle (syn: Bowman's space)
EMAP:30275						└─┬ glomerular mesangium of Bowman's capsule
EMAP:30265						└─┬ juxtaglomerular arteriole
EMAP:30266						└─┬ afferent arteriole
EMAP:30267						└─┬ efferent arteriole
EMAP:30289						└─┬ mature renal corpuscle (syn: Malpighian corpuscle)
EMAP:30291						└─┬ glomerular tuft (syn: glomerulus)
EMAP:30294						└─┬ glomerular capillary system
EMAP:30295						└─┬ glomerular mesangium
EMAP:30293						└─┬ glomerular basement membrane

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EMAP:30292					└ visceral epithelium (syn: podocyte layer)
EMAP:30300					└ Bowman's capsule (syn: glomerular capsule)
EMAP:30301					└ parietal epithelium
EMAP:30302					└ urinary space of renal corpuscle (syn: Bowman's space)
EMAP:30296					└ afferent arteriole
EMAP:30297					└ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)
EMAP:30298					└ rest of afferent arteriole
EMAP:30290					└ efferent arteriole
EMAP:30299					└ extraglomerular mesangium
EMAP:30288	G				└ mature nephron
EMAP:30253					└ cortical renal tubule
EMAP:30254					└ renal proximal tubule
EMAP:30255					└ early proximal tubule
EMAP:31707					└ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule)
EMAP:31615					└ early proximal tubule of maturing nephron
EMAP:30256					└ renal proximal convoluted tubule (syn: first convoluted tubule)
EMAP:31287					└ anlage of loop of Henle (syn: primitive loop of Henle)
EMAP:30257					└ renal distal tubule
EMAP:30261					└ early distal tubule
EMAP:31642					└ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)
EMAP:31621					└ early distal tubule of maturing nephron
EMAP:30262					└ distal convoluted tubule (syn: second convoluted tubule)
EMAP:30258					└ distal straight tubule (syn: thick ascending limb)
EMAP:31382					└ premacula segment of distal straight tubule
EMAP:30260					└ macula densa
EMAP:30259					└ postmacula segment
EMAP:30263					└ renal connecting tubule
EMAP:31627					└ renal connecting tubule of capillary loop nephron
EMAP:31633					└ renal connecting tubule of maturing nephron
EMAP:31636					└ renal connecting tubule of mature nephron
EMAP:31824					└ cortical renal tubule of capillary loop nephron GROUP
EMAP:31287					└ anlage of loop of Henle (syn: primitive loop of Henle)
EMAP:31642					└ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)
EMAP:31707					└ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule)
EMAP:31627					└ renal connecting tubule of capillary loop nephron
EMAP:31818					└ cortical renal tubule of maturing nephron GROUP
EMAP:31621					└ early distal tubule of maturing nephron
EMAP:31615					└ early proximal tubule of maturing nephron
EMAP:31633					└ renal connecting tubule of maturing nephron
EMAP:31793					└ cortical renal tubule of mature nephron GROUP
EMAP:30262					└ distal convoluted tubule (syn: second convoluted tubule)
EMAP:30258					└ distal straight tubule (syn: thick ascending limb)
EMAP:31382					└ premacula segment of distal straight tubule
EMAP:30260					└ macula densa
EMAP:30259					└ postmacula segment
EMAP:31636					└ renal connecting tubule of mature nephron
EMAP:30256					└ renal proximal convoluted tubule (syn: first convoluted tubule)
EMAP:31498					└ Loop of Henle group
EMAP:30351					└ loop of Henle, outer medullary portion
EMAP:30353					└ thin descending limb
EMAP:30352					└ thin ascending limb (syn: ascending thin limb)
EMAP:30356					└ proximal straight tubule (syn: pars recta; segment 3 of proximal tubule)
EMAP:30354					└ premacula segment of distal straight tubule (syn: thick ascending limb)
EMAP:30339					└ loop of Henle, inner medullary portion
EMAP:30341					└ thin descending limb
EMAP:30340					└ bend (syn: U-turn)
EMAP:30342					└ thin ascending limb (syn: ascending thin limb)
EMAP:30289					└ mature renal corpuscle (syn: Malpighian corpuscle)
EMAP:30291					└ glomerular tuft (syn: glomerulus)
EMAP:30294					└ glomerular capillary system
EMAP:30295					└ glomerular mesangium
EMAP:30293					└ glomerular basement membrane
EMAP:30292					└ visceral epithelium (syn: podocyte layer)
EMAP:30300					└ Bowman's capsule (syn: glomerular capsule)
EMAP:30301					└ parietal epithelium
EMAP:30302					└ urinary space of renal corpuscle (syn: Bowman's space)
EMAP:30296					└ afferent arteriole
EMAP:30297					└ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)
EMAP:30298					└ rest of afferent arteriole
EMAP:30290					└ efferent arteriole
EMAP:30299					└ extraglomerular mesangium
EMAP:30280	G				└ collecting duct (syn: ureteric tree)

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EMAP:30248						ureteric tip (syn: ureteric ampulla)
EMAP:31052						ureteric tree terminal branch excluding tip itself
EMAP:30286						└ ureteric trunk
EMAP:30281						├ cortical collecting duct
EMAP:30349						├ outer medullary collecting duct
EMAP:30336						└ inner medullary collecting duct (syn: papillary collecting duct)
EMAP:30286 G						└ ureteric trunk
EMAP:30281						├ cortical collecting duct
EMAP:30349						├ outer medullary collecting duct
EMAP:30336						└ inner medullary collecting duct (syn: papillary collecting duct)
EMAP:30362 G						└ renal interstitium group
EMAP:30283						├ nephrogenic interstitium (syn: peripheral blastema)
EMAP:30311						├ associated interstitium of renal corpuscle
EMAP:30309						├ presumptive mesangium
EMAP:30270						├ glomerular mesangium
EMAP:30295						├ glomerular mesangium
EMAP:30299						├ extraglomerular mesangium
EMAP:30315						├ renal cortical interstitium (syn: cortical stroma)
EMAP:31294						├ renal cortical fibroblasts
EMAP:31302						├ resident macrophages of the cortex (syn: renal monocytes of the cortex)
EMAP:31310						└ rest of renal cortical interstitium
EMAP:31459						├ renal medullary interstitium (syn: medullary stroma)
EMAP:31331						├ renal medullary fibroblasts
EMAP:31338						├ resident macrophages of the medulla (syn: renal monocytes of the medulla)
EMAP:31345						└ rest of renal medullary interstitium
EMAP:30350						├ outer medullary interstitium
EMAP:31387						├ outer medullary fibroblast
EMAP:31392						├ resident macrophage of the outer medulla (syn: renal monocytes of the outer medulla)
EMAP:31397						└ rest of outer medullary interstitium
EMAP:30337						├ inner medullary interstitium (syn: papillary interstitium)
EMAP:31402						├ inner medullary fibroblast
EMAP:31407						├ resident macrophage of the inner medulla (syn: renal monocytes of the inner medulla)
EMAP:30279						└ perihilar interstitium
EMAP:31365						├ perihilar fibroblast
EMAP:31371						├ resident macrophage of the perihilar interstitium (syn: renal monocytes of the perihilar interstitium)
EMAP:31377						└ rest of perihilar interstitium
EMAP:31474 G						└ small blood vessels
EMAP:30327						├ renal cortical capillary
EMAP:30290						├ efferent arteriole
EMAP:30358						├ renal medullary arterial system
EMAP:30296						├ afferent arteriole
EMAP:30297						├ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)
EMAP:30298						└ rest of afferent arteriole
EMAP:30294						├ glomerular capillary system
EMAP:30271						├ glomerular capillary system of maturing glomerular tuft
EMAP:30359						├ renal medullary capillary (syn: vasa recta)
EMAP:30360						└ renal medullary venous system
EMAP:31448 G						└ renal capillaries
EMAP:30294						├ glomerular capillary system
EMAP:30327						├ renal cortical capillary
EMAP:30359						└ renal medullary capillary (syn: vasa recta)
EMAP:31775 G						└ developing vasculature of urinary system GROUP
EMAP:30417						├ renal vasculature
EMAP:30294						├ glomerular capillary system
EMAP:30271						├ glomerular capillary system of maturing glomerular tuft
EMAP:30265						├ juxtaglomerular arteriole
EMAP:30266						├ afferent arteriole
EMAP:30267						└ efferent arteriole
EMAP:30310						├ presumptive endothelium of renal corpuscle
EMAP:30244						├ renal artery
EMAP:30245						├ endothelial layer of renal artery
EMAP:30465						├ endothelium of renal artery
EMAP:30246						└ smooth muscle layer of renal artery
EMAP:30404						├ renal vein
EMAP:30405						├ endothelial layer of renal vein
EMAP:30466						├ endothelium of renal vein
EMAP:30406						└ smooth muscle layer of renal vein
EMAP:30359						├ renal medullary capillary (syn: vasa recta)
EMAP:30330						├ interlobular artery
EMAP:30329						├ arcuate artery
EMAP:30296						├ afferent arteriole
EMAP:30297						├ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)

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EMAP:30298					└ rest of afferent arteriole
EMAP:30333					└ interlobular vein
EMAP:30332					└ arcuate vein
EMAP:30858					└ ureteral vasculature
EMAP:30417 G					└ renal vasculature
EMAP:30294					└ glomerular capillary system
EMAP:30271					└ glomerular capillary system of maturing glomerular tuft
EMAP:30265					└ juxtaglomerular arteriole
EMAP:30266					└ afferent arteriole
EMAP:30267					└ efferent arteriole
EMAP:30310					└ presumptive endothelium of renal corpuscle
EMAP:30244					└ renal artery
EMAP:30245					└ endothelial layer of renal artery
EMAP:30465					└ endothelium of renal artery
EMAP:30246					└ smooth muscle layer of renal artery
EMAP:30404					└ renal vein
EMAP:30405					└ endothelial layer of renal vein
EMAP:30466					└ endothelium of renal vein
EMAP:30406					└ smooth muscle layer of renal vein
EMAP:30359					└ renal medullary capillary (syn: vasa recta)
EMAP:30330					└ interlobular artery
EMAP:30329					└ arcuate artery
EMAP:30296					└ afferent arteriole
EMAP:30297					└ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)
EMAP:30298					└ rest of afferent arteriole
EMAP:30333					└ interlobular vein
EMAP:30332					└ arcuate vein
EMAP:31441 G					└ renal arterial system
EMAP:30244					└ renal artery
EMAP:30245					└ endothelial layer of renal artery
EMAP:30465					└ endothelium of renal artery
EMAP:30246					└ smooth muscle layer of renal artery
EMAP:30330					└ interlobular artery
EMAP:30329					└ arcuate artery
EMAP:30358					└ renal medullary arterial system
EMAP:31455 G					└ renal venous system
EMAP:30404					└ renal vein
EMAP:30405					└ endothelial layer of renal vein
EMAP:30466					└ endothelium of renal vein
EMAP:30406					└ smooth muscle layer of renal vein
EMAP:30333					└ interlobular vein
EMAP:30332					└ arcuate vein
EMAP:30296					└ afferent arteriole
EMAP:30297					└ part of afferent arteriole forming the juxtaglomerular complex (syn: renin-producing cell)
EMAP:30298					└ rest of afferent arteriole
EMAP:30290					└ efferent arteriole
EMAP:30360					└ renal medullary venous system
EMAP:31811 G					└ nerves of urethra GROUP
EMAP:31799					└ nerve of pelvic urethra of female
EMAP:31789					└ nerve of pelvic urethra of male
EMAP:31740					└ nerve of phallic urethra of female
EMAP:31805					└ nerve of phallic urethra of male
EMAP:30156					└ reproductive system
EMAP:30157					└ male reproductive system
EMAP:30199					└ epididymis
EMAP:31008 G					└ epithelium of epididymis
EMAP:30615					└ epithelium of caput of epididymis
EMAP:30603					└ epithelium of corpus epididymis
EMAP:30591					└ epithelium of cauda of epididymis
EMAP:31016 G					└ muscle layer of epididymis
EMAP:30619					└ muscle layer of caput of epididymis
EMAP:30607					└ muscle layer of corpus of epididymis
EMAP:30595					└ muscle layer of cauda of epididymis
EMAP:31012 G					└ adventitia of epididymis
EMAP:30623					└ adventitia of caput of epididymis
EMAP:30611					└ adventitia of corpus of epididymis
EMAP:30599					└ adventitia of cauda of epididymis
EMAP:31239 G					└ developing vasculature system of epididymis
EMAP:31208					└ developing vasculature of caput epididymis
EMAP:31203					└ developing vasculature of corpus epididymis
EMAP:31198					└ developing vasculature of cauda epididymis
EMAP:30982 G					└ male external genitalia

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EMAP:30161 | | | penis (syn: genital tubercle of male)  
 EMAP:30162 | | | | glans penis  
 EMAP:30649 | | | | | surface epithelium of glans penis  
 EMAP:30645 | | | | | L mesenchyme of glans penis  
 EMAP:30164 | | | | | crus penis  
 EMAP:30671 | | | | | | surface epithelium of crus penis  
 EMAP:30667 | | | | | | L mesenchyme of crus penis  
 EMAP:30163 | | | | | L prepuce of male  
 EMAP:30658 | | | | | | prepuce surface epithelium of male  
 EMAP:30662 | | | | | | preputial gland of male  
 EMAP:30653 | | | | | | L prepuce mesenchyme of male  
 EMAP:30736 | | | | | L scrotal fold  
 EMAP:30742 | | | | | | scrotal fold mesenchyme of male  
 EMAP:30739 | | | | | | L scrotal fold surface epithelium of male  
 EMAP:30203 | | | | | female reproductive system  
 EMAP:30224 | | | | | | ovary  
 EMAP:31062 G | | | | | | L ovigerous cord  
 EMAP:31033 | | | | | | | meiotic oocytes  
 EMAP:31039 | | | | | | | L pre-granulosa cell  
 EMAP:30236 | | | | | | vagina  
 EMAP:30995 G | | | | | | | epithelium of vagina  
 EMAP:30238 | | | | | | | | epithelial layer of lower part of vagina  
 EMAP:30241 | | | | | | | | L epithelial layer of upper part of vagina  
 EMAP:31001 G | | | | | | | muscular layer of vagina  
 EMAP:30239 | | | | | | | | muscular layer of lower part of vagina  
 EMAP:30242 | | | | | | | | L muscular layer of upper part of vagina  
 EMAP:31233 G | | | | | | | L developing vasculature of vagina  
 EMAP:31228 | | | | | | | | developing vasculature of lower part of vagina  
 EMAP:31223 | | | | | | | | L developing vasculature of upper part of vagina  
 EMAP:30989 G | | | | | | female external genitalia  
 EMAP:30211 | | | | | | | genital tubercle of female (syn: clitoris anlage)  
 EMAP:30213 | | | | | | | | glans clitoris  
 EMAP:30723 | | | | | | | | | surface epithelium of glans clitoris  
 EMAP:30718 | | | | | | | | | L mesenchyme of glans clitoris  
 EMAP:30212 | | | | | | | | | crus of clitoris  
 EMAP:30733 | | | | | | | | | | surface epithelium of crus of clitoris  
 EMAP:30728 | | | | | | | | | | L mesenchyme of crus of clitoris  
 EMAP:30702 | | | | | | | | | L prepuce of female  
 EMAP:30710 | | | | | | | | | | prepuce surface epithelium of female  
 EMAP:30714 | | | | | | | | | | preputial gland of female  
 EMAP:30706 | | | | | | | | | | L prepuce mesenchyme of female  
 EMAP:30204 | | | | | | | L labial swelling (syn: labia)  
 EMAP:30442 | | | | | | | | surface epithelium of labial swelling  
 EMAP:30437 | | | | | | | | L mesenchymal layer of labial swelling  
 EMAP:31784 G | | | | | L developing vasculature of reproductive system GROUP  
 EMAP:30231 | | | | | | developing vasculature of ovary  
 EMAP:30172 | | | | | | L developing vasculature of the testis  
 EMAP:30173 | | | | | | | coelomic vessel  
 EMAP:30174 | | | | | | | L interstitial vessel  
 EMAP:31467 G | | | | | L large blood vessels  
 EMAP:30329 | | | | | | arcuate artery  
 EMAP:30332 | | | | | | arcuate vein  
 EMAP:30330 | | | | | | | interlobular artery  
 EMAP:30333 | | | | | | | L interlobular vein